

In The Claims:

Please amend the claims as follows:

Claim 1. (withdrawn) A diode structure, comprising:

a first conductive type substrate;

a second conductive type first well region located within the substrate;

a first conductive type second well region located within the first well region;

a second conductive type first doped region located within the first well region and detached from the second well region but adjacent to the surface of the substrate; and

a first conductive type second doped region and a second conductive type third doped region located within the second well region and adjacent to the surface of the substrate, wherein the second doped region is located between the first doped region and the third doped region but detached from both the first doped region and the third doped region.

Claim 2. (withdrawn) The diode structure of claim 1, wherein the first doped region and the second doped region are coupled to a drain terminal and the third doped region is coupled to a ground terminal.

Claim 3. (withdrawn) The diode structure of claim 1, wherein the diode further comprises a shallow trench isolation region set between the first doped region and the second doped region and between the second doped region and the third doped region and set adjacent to the surface of the substrate.

Claim 4. (withdrawn) The diode structure of claim 1, wherein the first conductive type is an n-doped type and the second conductive type is a p-doped type or vice versa.

Claim 5. (withdrawn) A diode string structure, comprising:

a first conductive type substrate;

at least two diode structures located within the substrate, wherein each diode structure comprising:

a second conductive type first well region located within the substrate;

a first conductive type second well region located within the first well region;

a second conductive type first doped region located within the first well region

and detached from the second well region but adjacent to the surface of the substrate; and

a first conductive type second doped region and a second conductive type third doped region located within the second well region and adjacent to the surface of the substrate, wherein the second doped region is located between the first doped region and

the third doped region but detached from both the first doped region and the third doped region.

Claim 6. (withdrawn) The diode string structure of claim 5, wherein the third doped region of each diode is coupled to the first doped region and the second doped region of a following diode.

Claim 7. (withdrawn) The diode string of claim 6, wherein the first doped region and the second doped region are coupled to a drain terminal and the third doped region is coupled to the first doped region and the second doped region of the following diode if the diode is the first diode in the diode string.

Claim 8. (withdrawn) The diode string of claim 6, wherein the third doped region is coupled to a ground terminal and the first doped region and the second doped region are coupled to the third doped region of a previous diode if the diode is the last diode in the diode string.

Claim 9. (withdrawn) The diode string of claim 5, wherein the diode string further comprises a first shallow trench isolation region set between neighboring diode structures and adjacent to the surface of the substrate.

Claim 10. (withdrawn) The diode string of claim 5, wherein the diode string further comprises a second shallow trench isolation region set between the first doped region and the second doped region and between the second doped region and the third doped region and adjacent to the surface of the substrate.

Claim 11. (withdrawn) The diode string of claim 5, wherein the first conductive type is a p-doped type and the second conductive type is an n-doped type or the first conductive type is an n-doped type and the second conductive type is a p-doped type.

Claim 12. (Currently Amended) A diode string structure having a starting end and a terminal end, comprising:

a substrate with of a first conductive type;

a first well region with of a second conductive type located within the substrate;

a first doped region with of the second conductive type located within the first well region ~~at the starting end of the diode string~~, wherein the first doped region is the starting end of the diode string structure and adjacent to the surface of the substrate and the first doped region is coupled to a drain terminal; and

~~at least two diode structures located within the first well region, wherein each diode structure is detached from the first doped region and one of the diode structures is a starting diode structure adjacent to the starting end of the diode string structure, one of the diode structure is an ending diode structure as the terminal end of the diode string structure and each diode structures comprises:~~

a second well region with the first conductive type located within the first well region, wherein the second well region is not physically contacted with the first doped region; and

a second doped region with of the first conductive type and third doped region with of the second conductive type located within the second well region and adjacent to the surface of the substrate, wherein the third doped region and the second doped region are detached from not physically contacted with each other.

Claim 13. (Currently Amended) The diode string structure of claim 12, wherein for each diode structure neither the first starting diode structure ~~at the starting end of the diode string~~ nor the last ending diode structure ~~at the terminal end of the diode string~~, there is a post diode structure in the diode string structure directly located next to the diode structure ~~in the diode string~~ and the third doped region of the diode structure is coupled to the second doped region of the post diode structure.

Claim 14. (Currently Amended) The diode string structure of claim 13, wherein when for the starting diode structure is located at the starting end of the diode string adjacent to the first doped region, the second doped region of the starting diode structure is coupled to the first doped region and the third doped region of the starting diode structure is coupled to the second doped region of another diode structure next to the first starting diode structure in the diode string structure.

Claim 15. (Currently Amended) The diode string structure of claim 13, wherein when for the ending diode structure is located at the terminal end of the diode string structure, the third doped region of the ending diode structure is coupled to a ground terminal and the second doped region of the ending diode structure is coupled to the third doped region of another diode structure prior to the ending diode structure in the diode string structure.

Claim 16. (Currently Amended) The diode string structure of claim 12, wherein the diode string structure further comprises a first shallow trench isolation region set between neighboring diode structures and adjacent to the surface of the substrate.

Claim 17. (Currently Amended) The diode string structure of claim 12, wherein the diode string structure further comprises a second shallow trench isolation region set between the first doped region and the third doped region and between the first doped region and the second doped region and adjacent to the surface of the substrate.

Claim 18. (Currently Amended) The diode string structure of claim 12, wherein the first conductive type is a p-doped type and the second conductive type is an n-doped type or the first conductive type is an n-doped type and the second conductive type is a p-doped type.